

REMARKS/ARGUMENTS

Claims 1-51 were presented for examination. Claims 37-51 were withdrawn from consideration and are herein canceled leaving claims 1-36 pending in this application. In a Final Official Office Action dated June 28, 2005, claims 1-36 were rejected. Applicants submitted a response on July 15, 2005 which, according to the Advisory Action of August 11, 2005 was not persuasive. The Applicants thank the Examiner for examination of the claims pending in this application and submit this amendment in conjunction with a RCE. The applicant further requests an interview with the Examiner to discuss the merits of the case as presented herein.

Applicants herein amends claims 1, 13, and 25 and respectfully traverse the Examiners prior rejections. Claims 1-36 are canceled without prejudice and no new claims are presently added. These changes are believed not to introduce new matter, and their entry is respectfully requested. The claims have been amended to expedite the prosecution and issuance of the application. In making this amendment, Applicants have not and are not narrowing the scope of the protection to which the Applicants consider the claimed invention to be entitled and do not concede, directly or by implication, that the subject matter of such claims was in fact disclosed or taught by the cited prior art. Rather, Applicants reserve the right to pursue such protection at a later point in time and merely seek to pursue protection for the subject matter presented in this submission.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding rejections and withdraw them.

35 U.S.C. §103(a) Obviousness Rejection of Claims

Claims 1-36 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,633,945 ("Fu") in view of U.S. Patent No. 6,295,571

("Scardamalia") and further in view of U.S. Patent No. 5,915,104 ("Miller"). The Applicants respectively traverse these rejections in light of the following remarks and respectfully request reconsideration.

MPEP §2143 provides:

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teaching. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

Claim 1 states, among other things, "a processor element associated with said at least one memory module slot for providing a data connection to an external device coupled thereto." With respect to claim 1, the Examiner admits that Fu "does not explicitly disclose a processor element associated with at least one memory module slot for providing data connection to an external device coupled thereto...." Final Office Action dated June 28, 2005, page 2. To rectify this deficiency in Fu the Examiner turns to Scardamalia. The Examiner states that "Scardamalia discloses a memory module adapter module (300, fig. 1) associated with at least one memory module slot for providing a data connection to an external device (100, fig. 1) coupled thereto (col.5 lines 24-28)." Final Office Action, page 3. The Examiner, however, fails to identify in either Fu, Scardamalia, or Miller the disclosure of a processor element associated with said at least one memory module slot.

The presence of a processor element associated with a memory module slot is significant and novel. Scardamalia teaches a shared memory unit ("SMU") including a memory alias adapter ("MAA") coupled to the computers processors.

See Scardamalia, Col. 5, lines 17-20, Figure 1) Scardamalia continues by describing that the MAA may “comprise a SIMM/DIMM memory module closely coupled to the computer’s processor via a socket proximate the processor and that each MAA includes an I/O to connect the MAA to the SMU 100 via a cable or bus.” Scardamalia, Col. 5, lines 22-29.

Both Fu and Scardamalia fail to teach or suggest a processor element uniquely associated with the a memory module slot for providing data connection between the memory module (and thus the memory bus) and an external device. As disclosed in Fu, Scardamalia, and Miller a common memory format in Personal Computing is know as Dual Inline Memory Module (“DIMM”). DIMM memory is typically the primary storage location for the PC microprocessor’s internal processes and is designed to be electrically close to the processor and exhibit very low latency. Bandwidth of the Microprocessor – Memory Controller – DIMM path is today on the order of 2.1GB/Sec. In comparison the bandwidth of today’s PCI bus – Memory Controller – Microprocessor connection is no better than 1 GB/Sec and is typically on the order of 256 MB/Sec.

The system architecture disclosed in Fu, Scardamalia, and Miller uses a PCI bus architecture to convey external data to the processor through a Memory Controller and is thus limited by the inherent bandwidth and latency issues associated with a PCI bus. Even Scardamalia’s MAA is “implemented as a PCI-bus card.” Scardamalia Col. 6, lines 9-11. The processor element associated with the memory module (DIMM) as recited in claim 1 of the Applicants’ invention allows processing tasks (i.e. data conveyed via the cluster interconnect fabric) to be shared among multiple processors without begin penalized by having to communicate data via a PCI bus. As stated in claim 1, the processor element associated with the memory module is distinct from the at least one processor of the claimed computer system.

By associating a processor element with the memory module, the Applicant’s

invention is able to utilize the substantially greater bandwidth of the memory bus between the Memory Controller and the Memory Module. (See Figure 5 of the Applicant's Invention) Fu, Scardamalia, and Miller fail to teach or suggest this element of claim 1. Accordingly the Applicants respectfully submits that claim 1 is patentable over Fu in view of Scardamalia in further view of Miller. Independent claims 13 and 25 recite, among other things and in varying language, the same processor element limitation as claim 1 and are for at least the same reasons patentable over Fu in view of Scardamalia in further view of Miller. Claims 2-12, 14-24, and 26-36 depend from claims 1, 13, and 25 respectively and are for at least the same reasons patentable over Fu in view of Scardamalia in further view of Miller. Withdrawal of the rejections and reconsideration of the claim is respectfully requested.

This Amendment is hereby submitted together with a Request for Continued Examination of the above-identified application with the \$790 filing fee. Should the Examiner be of the opinion that a telephone conference would expedite the prosecution of this case, the Examiner is requested to contact Applicants' attorney at the telephone number listed below.

No additional fee is believed due for this submittal. However, any fee deficiency associated with this submittal may be charged to Deposit Account No. 50-1123.

Respectfully submitted,

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